

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (currently amended) A coating composition for making a microarray comprising:

microspheres dispersed in a fluid, the fluid containing a coating aid and a gelling agent or a precursor to a gelling agent, wherein the microspheres are immobilized at random positions on the substrate upon gelation of the gelling agent ~~a gelling agent or a precursor to a gelling agent and microspheres dispersed in a fluid;~~

~~wherein, upon coating the composition on a substrate, said microspheres become immobilized in the plane of coating and form a random pattern on the substrate.~~

2 (currently amended) A coating composition according to claim 1 ~~wherein said substrate,~~ useful for coating on a substrate that is not premarked and does not contain microwells ~~characterized by an absence of specific sites capable of interacting physically or chemically with the microspheres.~~

3 (original) A coating composition according to claim 1 wherein the random pattern on the substrate is preserved upon gelation of the gelling agent.

4 (currently amended) A coating composition according to claim 1 wherein the microspheres are chemically functionalized to have ~~can bear~~ surface active sites.

5 (currently amended) A coating composition according to claim 4 wherein the surface active sites ~~can~~ carry organic or inorganic attachments.

6 (currently amended) A coating composition according to claim 4 wherein the organic or inorganic attachments on the surface active site is are capable of chemical or physical interaction.

7 (original) A coating composition according to claim 4 wherein the surface active site is bioactive.

8 (original) A coating composition according to claim 7 wherein the bioactive site interacts with nucleic acid, protein, or fragments thereof.

9 (original) A coating composition according to claim 1 wherein the microsphere contains a signature.

10 (original) A coating composition according to claim 9 wherein the signature is comprised of an oil-soluble dye.

11 (original) A coating composition according to claim 9 wherein the signature is interrogatable by optical, magnetic, or other electromagnetic means.

12 (original) A coating composition according to claim 1 wherein the gelling agent is gelatin.

13 (original) A coating composition according to claim 1 wherein the gelling agent undergoes thermal gelation.

14 (original) A coating composition according to claim 12 wherein the gelatin is alkali pretreated gelatin.

15 (original) A coating composition according to claim 1 wherein the microspheres have a mean diameter between 1 and 50 microns.

16 (original) A coating composition according to claim 1 wherein the microspheres have a mean diameter between 3 and 30 microns.

17 (original) A coating composition according to claim 1 wherein the microspheres have a mean diameter between 5 and 20 microns.

18 (original) A coating composition according to claim 1 wherein the microspheres in the composition are immobilized on the substrate in a concentration between 100 and 1 million microspheres per cm².

19 (original) A coating composition according to claim 1 wherein the microspheres in the composition are immobilized on the substrate in a concentration between 1000 and 200,000 microspheres per cm².

20 (original) A coating composition according to claim 1 wherein the microspheres in the composition are immobilized on the substrate in a concentration between 10,000 and 100,000 microspheres per cm².

21 (original) A coating composition according to claim 1 wherein the microspheres comprise a synthetic or natural polymeric material.

22 (original) A coating composition according to claim 21 wherein the polymeric material is an amorphous polymer.

23 (original) A coating composition according to claim 22 wherein the amorphous polymer is polystyrene.

24 (original) A coating composition according to claim 4 wherein the microsphere contains a surface active site comprising a functionality selected from the group consisting of carboxy, amine, epoxy, hydrazine, aldehyde and combinations thereof.

25 (canceled)

26 (original) A coating composition according to claim 1 wherein the microspheres are prepared by emulsion polymerization or limited coalescence.

27 (currently amended) A microarray comprising:
a substrate coated with a composition comprising microspheres dispersed in a fluid, the fluid containing a coating aid and a gelling agent or a precursor to a gelling agent, wherein the microspheres are immobilized at random positions on the substrate upon gelation of the gelling agent.

28 (original) A microarray according to claim 27 wherein the substrate is free of receptors designed to physically or chemically interact with the microspheres.

29 (original) A microarray according to claim 27 wherein the random pattern on the substrate is preserved upon gelation of the gelling agent.

30 (original) A microarray according to claim 27 wherein the gelling agent is gelatin.

31 (original) A microarray according to claim 27 wherein the microspheres bear chemically active sites.

32 (original) A microarray according to claim 27 wherein the chemically active site is bioactive.

33 (original) A microarray according to claim 27 wherein the substrate comprises glass, plastic, cellulose acetate, or polyethyleneterephthalate.

34 (currently amended) A microarray according to claim ~~25~~ 27 wherein the substrate is flexible.

35-40 (withdrawn)